

- 1 1. A polypeptide constituting a cell surface
2 molecule having characteristics below:
3 (a) said cell surface molecule is expressed in at
4 least thymocytes and mitogen-stimulated lymphoblast cells;
5 (b) an antibody reactive to said cell surface
6 molecule induces adhesion between mitogen-stimulated
7 lymphoblast cells;
8 (c) an antibody reactive to said cell surface
9 molecule induces proliferation of peripheral blood
10 lymphocytes in the presence of an antibody against CD3;
11 (d) said cell surface molecule has a partial amino
12 acid sequence represented by Phe-Asp-Pro-Pro-Phe in its
13 extracellular region; and
14 (e) said cell surface molecule has a partial amino
15 acid sequence represented by Tyr-Met-Phe-Met in its
16 cytoplasmic region.
- 1 2. The polypeptide of claim 1, comprising the
2 amino acid sequence of SEQ ID NO: 2 or the amino acid
3 sequence of SEQ ID NO: 2 in which one or more amino acids
4 are substituted, deleted, or added.
- 1 3. The polypeptide of claim 1, which is encoded by
2 a DNA hybridizing with a DNA having the nucleotide sequence
3 of SEQ ID NO: 1 under stringent conditions.
- 1 4. The polypeptide of claim 1, comprising an amino
2 acid sequence having 60% or more homology with an amino acid
3 sequence of SEQ ID NO: 2.
- 1 5. The polypeptide of claim 1, wherein said cell
2 surface molecule is derived from human.

1 16. A homodimer molecule comprising two polypeptide
2 fragments, wherein each of the fragments comprises an
3 extracellular region of the polypeptide of claim 1 and said
4 two polypeptide fragments bridged through disulfide bonds to
5 each other.

1 17. The homodimer molecule of claim 16, wherein
2 said polypeptide is a human-derived polypeptide having an
3 amino acid sequence of SEQ ID NO: 2.

1 18. A pharmaceutical composition comprising the
2 polypeptide fragment of claim 14 and a pharmaceutically
3 acceptable carrier.

1 19. A fusion polypeptide comprising an
2 extracellular region of the polypeptide of claim 1 and a
3 constant region of a human immunoglobulin (Ig) heavy chain
4 or a portion of the constant region.

1 20. The fusion polypeptide of claim 19, wherein the
2 immunoglobulin is IgG.

21. The fusion polypeptide of claim 19, wherein the portion of the constant region comprises a hinge region, C2 domain, and C3 domain of IgG.

1 22. The fusion polypeptide of claim 19, wherein
2 said polypeptide is a human-derived polypeptide having an
3 amino acid sequence of SEQ ID NO: 2.

23. A homodimer molecule comprising two fusion polypeptides of claim 19, wherein the two polypeptides bridged through disulfide bonds to each other.

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1 24. A homodimer molecule comprising two fusion
2 polypeptides of claim 22, wherein the two polypeptides
3 bridged through disulfide bonds to each other.

1 25. A pharmaceutical composition comprising either
2 of the fusion polypeptide of claim 22 and a pharmaceutically
3 acceptable carrier.

1 26. The pharmaceutical composition of claim 25,
2 wherein said pharmaceutical composition is utilized for
3 treating autoimmune diseases or allergic diseases, or for
4 preventing said disease symptom.

1 27. An antibody or a portion thereof reactive to
2 the polypeptide of claim 1, or the cell surface molecule
3 comprising said polypeptide.

1 28. The antibody of claim 27 or a portion thereof,
2 wherein said antibody is a monoclonal antibody.

1 29. A monoclonal antibody or a portion thereof
2 reactive to the polypeptide having an amino acid sequence of
3 SEQ ID NO: 2, the polypeptide fragment of claim 14, or the
4 human-derived cell surface molecule comprising said
5 polypeptide.

1 30. A monoclonal antibody or a portion thereof
2 reactive to the polypeptide of claim 1 or the cell surface
3 molecule comprising said polypeptide, wherein the effect of
4 said monoclonal antibody on mitogen-stimulated lymphoblast
5 cells is substantially the same as the effect of a
6 monoclonal antibody produced by a hybridoma identified by an

7 international deposit accession No. FERM BP-5707 on mitogen-
8 stimulated rat lymphoblast cells.

1 31. A monoclonal antibody or a portion thereof
2 reactive to the polypeptide of claim 1 or the cell surface
3 molecule comprising said polypeptide, wherein the effect of
4 said monoclonal antibody on mitogen-stimulated lymphoblast
5 cells is substantially the same as the effect of a
6 monoclonal antibody produced by a hybridoma identified by an
7 international deposit accession No. FERM BP-5708 on mitogen-
8 stimulated rat lymphoblast cells.

1 32. A pharmaceutical composition comprising the
2 monoclonal antibody of claim 29 or a portion thereof and a
3 pharmaceutically acceptable carrier.

1 33. The pharmaceutical composition of claim 32,
2 wherein said pharmaceutical composition is utilized for
3 treating autoimmune diseases or allergic diseases, or for
4 preventing said disease symptom.

1 34. A hybridoma producing the monoclonal antibody
2 of claim 28.

1 35. A transgenic mouse in which a gene encoding the
2 polypeptide of claim 1 is integrated into its endogenous
3 gene, wherein said gene is a human-derived gene comprising a
4 nucleotide sequence of SEQ ID NO: 1 or a rat-derived gene
5 comprising a nucleotide sequence corresponding to nucleotide
6 residues 35 to 637 of SEQ ID NO: 4.

1 36. A knockout mouse in which its endogenous gene
2 encoding the mouse polypeptide of claim 1 comprising the
3 amino acid sequence encoded by the gene of SEQ ID NO: 5 is
4 inactivated so that said mouse polypeptide is not produced.

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